680

Endovascular management of hemorrhagic complications after percutaneous nephrolithotomy: 10-years experience

Eur Urol Open Sci 2020;19(Suppl 2):e1042

Alabat Roca A., Torrecilla Ortiz C.T.O, Colom Freixa S.C.F, Cuadrado Campaña J.M.C.C, Beato García S.B.G, Riera Canals L.R.C, Vigués Julià F.V.J

Hospital Universitari de Bellvitge, Dept. of Urology, Barcelona, Spain

Introduction & Objectives: Percutaneous nephrolithotomy (PCNL) is still nowadays the standard treatment for large kidney stones. Hemorrhage due to arteriovenous fistula (AVF) or pseudoaneurysm (PA) is a frequent complication. Treatment is usually conservative in cases of minor bleeding but, in more severe cases, arteriography and selective embolization (ASE) is the preferred treatment. The objective of this study is to evaluate hemorrhagic complications (HC) after PCNL and the results of their endovascular treatment.

Materials & Methods: Between May 2009 and December 2018, 1335 PCNL for kidney stone disease were performed in our center. We analyzed the incidence of early and late HC, their management, the need for subsequent embolization, as well as clinical and analytical data for these patients.

Results: A total of 59 (4,4%) patients presented HC and were all managed with ASE to control the bleeding. 38 (64%) patients presented perirenal hematoma. Mean stone size was 26+/-12,1mm (IQR 7-60mm). A total of 48 (81%) patients were treated with single access PCNL, being the lower calyx the most frequently used for puncture (52% of cases). Regarding angiographic findings, there were 32 (54%) PA, 8 (14%) AVF, 4 (7%) extravasations due to vascular laceration and 15 (25%) PA and AVF combined. In one case, 3 procedures were required to control the bleeding. In 30 (51%) patients a blood transfusion was not necessary, while in 29 (49%) a mean of 1,3 (IQR 0-5) units were transfused. Mean time interval between PCNL and ASE was 7,3+/-4,9 days (IQR 0-21). A total of 24(41%) patients were re-admitted after discharge due to late HC requiring ASE. Delay between re-admission and ASE was 4,8+/-4,6 hours in average. Mean hemoglobin drop after PCNL amongst the 59 patients until prior to ASE was of 3,3+/-4,6 g/dL, p-value <0,05. Significant differences in renal function was observed between the pre-surgery value and prior to ASE and between the first and fifth day after ASE, p-value <0,05. In the subgroup analysis, there were no significant differences observed between early and late HC regarding changes in serum creatinine and hemoglobin (table 1).

Change in serum creatinine (umol/dL)	Overall (59)		Early HC (35)	Late HC (24)	
	Mean +/- SD	P-value	Mean +/- SD	Media +/- SD	p-value
Pre-PCNL to pre-ASE	28,3+/- 47,4	**0,0074**	28,4+/- 95	28,1+/- 40	0,98
Pre-ASe to 1 day post-ASE	6,5+/-35,5	0,18	22,6+/- 63	-2,6+/- 38	0,07
1 day post-ASE to 5 days post-ASE	-14,5+/-43,5	**0,017**	-31+/-82,3	-6,70+/-23,2	0,12
5 days post ASE to 3-months after	-4,4+/-41	0,43	-15,37+/-31	5,33+/- 44,8	0,06
Hemoglobin drop (g/dL)	33,4+/-46,1	**<0,0005**	37+/-39,6	28,2+/-55,5	0,5
Pre-PCNL to pre-ASE					

Conclusions: Early and late HC after PCNL can be severe. Rapid identification and treatment with ASE is an effective and minimally invasive and avoids multiple blood transfusions which in many cases constitute an insufficient treatment.